

A NEW SPECIES OF THE BEE GENUS *ANTHIDIUM* (HYMENOPTERA: MEGACHILIDAE) FROM WESTERN NORTH AMERICA¹

Roy R. Snelling²

ABSTRACT: *Anthidium cochimi* is described from the Lower California peninsula (Baja California Sur) and the southwestern United States (Arizona). Structural features that will aid in its recognition are illustrated. Males of *A. cochimi* are recognizable by a unique combination of characteristics of metasomal sternum 6 and terga 6 and 7; females are separable from similar species by characteristics of mandibular dentition, labral structure, and the structure of metasomal tergum 6. Diagnostic features are illustrated.

The following new species of *Anthidium* is one that may easily be confused with *A. sonorensis* Cockerell, particularly since the male shares with that species a characteristic hitherto believed to be unique to *A. sonorensis* males: the presence of a short, forward directed spine on the middle of the apical margin of metasomal sternum 6.

The ranges of the two species appear to be partially sympatric. Cockerell (1923) described *A. sonorensis* from a male collected in Sonora, Mexico, at Guaymas. At the same time a female from Isla San Jose in the Gulf of California was described as *A. sonorensis productum*. A few years later Schwarz (1927) described a male from Sacaton, Pinal Co., Arizona, as *A. rohweri*. Both *A. sonorensis productum* and *A. rohweri* were synonymized with *A. sonorensis* by Grigarick and Stange (1968). I have compared the types of all three of these taxa and agree with the synonymy proposed by Grigarick and Stange.

The range of *A. sonorensis* extends from southern Nevada and adjacent southern California, through Arizona, south into the State of Sonora, Mexico, at least to the Guaymas area; it has been collected also on the Lower California peninsula. There are few records from the peninsula and the extent of its southward distribution is unclear. At present the southernmost peninsular record is from sand dunes 8 km N of Guerrero Negro, at the border between Baja California and Baja California Sur.

Anthidium cochimi, new species

Figures 1-5

DIAGNOSIS. Male: metasomal sternum 6 (Fig. 2) with small anteriorly directed medioapical spine and lateral ridges low and evenly convex; basal apodeme of sternum 8 (Fig. 3) broadly

¹ Received January 21, 1992. Accepted March 27, 1992.

² Entomology Section, Natural History Museum of Los Angeles County, 900 Exposition Boulevard, Los Angeles, California 90007.

truncate-triangular, apical process short and broad; lateral process of metasomal tergum 6 (Fig. 1) slender and spine-like, slightly curved; lateral lobes of tergum 7 (Fig. 1) roughly triangular, broad, inner margins nearly straight; median process short and fully visible in profile (not on same plane as lateral lobes). **Female:** mandible (Fig. 5) with 7 teeth; median groove of labrum broad, extending about $2/3$ labral length and its flanking tubercles distinct but not spine-like; median truncation of clypeus (Fig. 5) narrow and nearly straight, apical margin laterad of median truncation with two low, rounded lobes; preapical carina of metasomal tergum 6 (Fig. 4) minutely crenulate and on each side terminating in short, acute tooth, posterior margin of tergum 6 visible only in median $1/4$ in dorsal view.

DESCRIPTION. **Holotype male,** measurements (mm): head width (HW) 4.4; head length (HL) (anterior margin of clypeus to posterior margin of vertex in frontal view) 3.5; wing length (WL) (from margin of tegula) 8.7; total length (TL) (HL + dorsal length of mesosoma + dorsal length of metasoma) 15.3. **Paratypes:** HW 3.2-4.4; HL 2.4-3.4; WL 2.4-3.8; TL 15.0-17.7.

Head about 1.2 times as wide as long; inner eye margins moderately convergent below, upper interorbital distance 1.1-1.2 times lower interorbital distance; vertex margin nearly straight in frontal view; antennal scape attaining level of anterior ocellus; interocellar distance (IOD) about 1.8 times transverse diameter of anterior ocellus (OD); ocellular distance (OOD) about 1.25 times OD; ocellovertexal distance (OVD) about 1.7 times OD. Clypeus about 1.2 times as long as wide and separated from inner eye margin by about 0.5 times OD; apical margin transverse. Labrum distinctly constricted near base; median groove deep and broad, extending about 0.66 length of segment; flanking tubercles of labral groove absent at base, preapical pair low and inconspicuous.

Mesosoma and legs normal for *Anthidium*, except metatibia outer face anteriorly carinate.

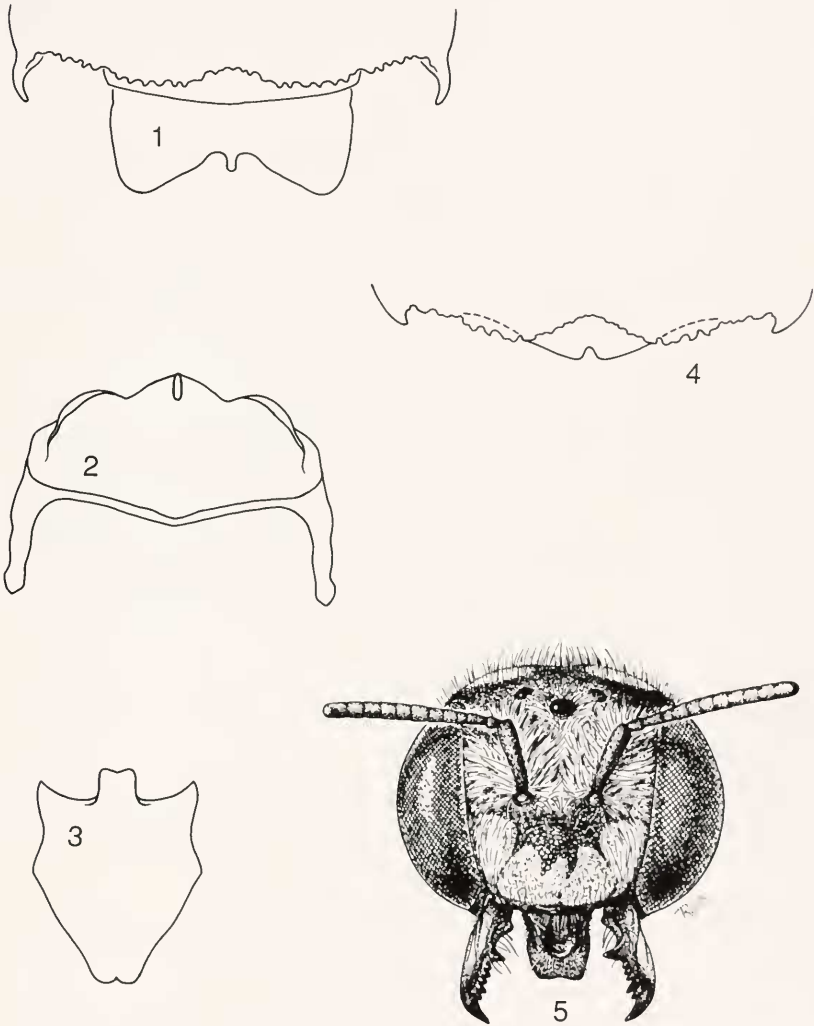
Metasomal tergum 6 with preapical carina broadly interrupted in middle, ending on each side in spine-like, slightly curved process; tergum 7 with broadly triangular lateral lobes, inner margins nearly straight for most of their length; median process short, suberect and curved distad, not on same plane as lateral lobes when viewed in profile; setal brush of sternum 4 brown, occupying middle 0.33 of apical margin; apical margin of sternum 6 with short median spine that is bent cephalad, lateral lobes distinct, low and evenly convex; sternum 8 with basal apodeme broad, margins convergent toward transverse base, apical margin broad and lateral angles acute, median process short and broad. **Genitalia:** gonostylus in profile with margins nearly parallel, apex obliquely truncate; inner lobe of gonobase short and triangular in ventral view; ventral margin of penis valve with 6-7 coarse teeth; apex of penis valve strongly narrowed and bent ventrad.

Punctuation of head and mesosoma normal for *Anthidium*, i.e., most areas contiguously to subcontiguously punctate, punctures moderate in size, disc of tegula contiguously and more finely punctate; basal area of propodeum distinctly subcontiguously punctate. Discs of metasomal terga 1-3 with elevated middle portion moderately and subcontiguously punctate, interspaces moderately shiny; basal depression more finely punctate, punctures dense; apical depression more finely and contiguously punctate; elevations of terga 4-6 more coarsely punctate except in middle; tergum 7 coarsely rugosopunctate.

Color blackish; antenna and legs dark reddish-brown but tarsi more reddish; clypeus, large lateral face mark, ending at level of antennal sockets, and underside of scape pale yellowish. The following brighter yellow: basal 0.66 of outer face of mandible; transverse spot on each side of vertex; spot on pronotal lobe; sublateral bands on anterior margin of mesoscutum and spot or band adjacent to tegula (may be absent); axillar spot (may be absent); posterior band on scutellum, narrowly interrupted in middle; anterior spot on tegula; external stripe on pro- and mesotibiae, that of mesotibia often more or less broadly interrupted; elongate basal spot on metatibia; small apical mark on metatibia (often absent); external face of all basitarsi; lateral and submedian marks of varying extent on metasomal terga 1-5 (sometimes lateral and sub-

median spots narrowly joined on 3-5); tergum 6 with large submedian spots. Tergum 7 immaculate.

Female, measurements (mm): HW 3.5-4.3; HL 2.7-3.5; WL 5.8-7.4; TL 9.5-13.2.



Figures 1-5, *Anthidium cochimi*. 1, male metasomal terga 6-7, dorsal view; 2, male metasomal sternum 6, ventral view; 3, male metasomal sternum 8, ventral view. 4, female: metasomal tergum 6, dorsal view; 5, female head, frontal view. Figures by Tina Ross.

Head width 1.2-1.3 times head length; inner eye margins moderately convergent below, upper interocular distance 1.2-1.3 times lower interocular distance; vertex margin low-convex in frontal view, weakly depressed in middle; antennal scape not attaining level of anterior ocellus; IOD about 2 times OD; OOD about 2.25 times OD; OVD about 2.5 times OD. Clypeus about 1.3 times as wide as long and separated from inner eye margin by slightly less than OD; median truncation of apical margin nearly straight, slightly narrower than distance between antennal sockets, apicolateral margin with two low, convex lobes. Labrum about as in male but with prominent basal and preapical tubercles flanking median groove. Mandible with 7 teeth.

Mesosoma and legs as usual in *Anthidium*, except metatibia outer face anteriorly carinate.

Transverse preapical carina of metasomal tergum 6 (Fig. 4) minutely crenulate and terminating on each side as short, acute tooth; apical margin visible in dorsal view only in median one-fifth before passing under carina.

Pilosity as usual in *Anthidium*; basitarsi with dense mats of finely plumose hairs; scopa variably entirely pale to largely very pale brownish except laterally.

Color about as in male but clypeus with black apical margin and with basal black area that extends distad along midline, sometimes beyond midlength; axillar spots prominent; protibial stripe incomplete; mesotibia with basal stripe only; submedian and lateral marks of metasomal tergum 5 sometimes joined.

TYPE MATERIAL. Holotype male: 17 mi SE Santa Rita, Baja California Sur, MEXICO, 18 Sept. 1983 (R.R. Snelling). Paratypes (all from Baja California Sur): 4 ♂♂, 4 ♀♀, same data as holotype; 3 ♂♂, 11 ♀♀, San Augustine, 8 Sept. 1989 (F.S. Truxal); 1 ♂, vic. Miraflores, 17 Sept. 1983 (R.R. Snelling); 1 ♀, 19 km NW Mulegé, 8 Sept. 1977 (R.R. Snelling); 1 ♀, vic. Estación Microondas "Ligui", 425 m el. (ca. 40 km S Loreto), 14 Sept. 1983 (R.R. Snelling), on *Antigone leptopus*; 4 ♂♂, 5 mi NW San Ignacio, 19 Sept. 1983 (R.R. Snelling), on *Tephrosia tenella*; 6 ♂♂, 1 ♀, Rancho Tablón, 13 km S Guillermo Prieto, 14-18 Apr. 1983 (M. Wasbauer), 3 ♂♂ on prostrate *Dalea* sp., 2 ♂♂, 1 ♀ ex malaise trap; 1 ♀, 12 mi S Guillermo Prieto, 7 Apr. 1982 (J. Slansky); 1 ♀, same data except (M.S. Wasbauer); 1 ♀, Boca de la Sierra, (near Miraflores), 900 ft. elev., 7 Mar. 1969 (R.R. Snelling); 2 ♀♀, 3.7 mi W La Burrera, 1400 ft. elev., 7-8 Oct. 1975 (R.R. Snelling), on *Celosia floribunda* (1 ♀) and *Verbesina palmeri* (1 ♀); 1 ♀, 5.5 mi W La Burrera, 1200 ft. elev., 8 Oct. 1975 (R.R. Snelling); 1 ♀, 9.6 mi N Loreto, 14 Sept. 1983 (R.R. Snelling), on *Bebbia juncea*. Holotype and most paratypes in LACM; additional paratypes deposited in American Museum of Natural History, California Academy of Sciences, California Department of Food and Agriculture, and National Museum of Natural History.

ADDITIONAL MATERIAL (Not paratypes). United States, Arizona: 3 ♂♂, Silver Bell Bajada, Pima Co., 7 May 1973 (J.L. Neff), on *Dalea parryi*; 1 ♂, same except 7 June 1973, on *Prosopis*; 1 ♂, same except 15 June 1973, on *Prosopis*; 4 ♀♀, 2.5 mi. SW Congress, Yavapai Co., 3150 ft. elev., 13 May 1975 (R.R. Snelling), on *Sphaeralcea*.

ETYMOLOGY. This species is named for the Cochimi linguistic group of Native Americans who formerly inhabited central Lower California.

DISCUSSION

The important characteristics of this species have already been cited above in the **DIAGNOSIS**. These alone should be sufficient to separate *A. cochimi* from any other known Nearctic species.

The spine at the apex of metasomal sternum 6 of the male is so similar to that of *A. sonorensis* that it is tempting to suggest that the two are closely related. On the other hand, there are so many differences in other characters, e.g., metasomal sculpture, the preapical carina of tergum 6, the shape of sternum 8, and many details of the genitalia, that this appears unlikely. The females differ markedly in the structure of the labrum, the number of mandibular teeth, in details of metasomal tergum 6, and in metasomal sculpture.

Because of the spotted, rather than striped, metasoma and the crenulate preapical margin of metasomal tergum 6, females of *A. cochimi* may be confused with those of *A. porterae* Cockerell, 1900, to which they will run in the key by Schwarz (1927). Females of *A. porterae*, however, have prominent curved, spine-like labral tubercles and the mandibles possess only six teeth.

Both sexes of *A. cochimi* possess a distinct carina anteriorly on the outer face of the metatibia, extending nearly the entire length of the segment. A similar carina is present and sharply defined in *A. maculifrons* F. Smith, *A. maculosum* Cresson, and *A. porterae*. A similar, but less well defined, carina is present along approximately the middle one-half of the metatibia in *A. sonorensis*. This carina is lacking in the remaining known North American species of *Anthidium*.

Aside from variations in size and in the extent of maculations, there is little variation in the material I have seen. Males commonly have the maculations of the third to fifth metasomal terga narrowly joined along their posterior margins. In only one female are the lateral and submedian spots joined, on the fifth segment only.

ACKNOWLEDGMENTS

For the loan of relevant type material I am indebted to Wojciech Pulawski, California Academy of Sciences, and to Ronald McGinley, National Museum of Natural History. Marius Wasbauer loaned material from the collection of the California Department of Food and Agriculture. An earlier draft of this paper was reviewed by Terry Griswold and materially improved as a result. My thanks and appreciation to each of these colleagues.

LITERATURE CITED

- Cockerell, T.D.A. 1900. Observations on bees collected at Las Vegas, New Mexico, and in the adjacent mountains. *Ann. Mag. Nat. Hist.*, (7)5:401-416.
- . 1923. Expedition of the California Academy of Sciences to the Gulf of California in 1921. The bees (1). *Proc. Calif. Acad. Sci.*, 4th series, 12:73-103.
- Grigarick, A.A. and L.A. Stange. 1968. The pollen-collecting bees of the Anthidiini of California (Hymenoptera: Megachilidae). *Bull. Calif. Insect Surv.*, 9:1-113.
- Schwarz, H.F. 1927. Additional North American bees of the genus *Anthidium*. *Amer. Mus. Novitates*, 253:1-17.